BIO-MOS®
TECHNICAL UPDATE

Effect of Bio-Mos® in calf milk replacers or starter: a summary of research

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Introduction

Calf health is most vulnerable in the first 3 months of life. Dietary supplementation with Bio-Mos® (mannan oligosaccharide, Alltech Inc.) has been used to manipulate gut microbiology and thus lessen the effect of pathogenic challenges in the young animal. Trials were conducted cooperatively with universities, milk replacer companies and at Alltech's calf research facilities to determine the effect of adding Bio-Mos® to milk/milk replacers or directly to calf starter.

Addition to whole milk and milk replacers

- Individually fed calves
- 1-to-3-day-old Holstein calves purchased either from auction barns or directly from dairies
- All calves received either a high quality milk replacer or whole milk; replacers contained an approved antibiotic
- Bio-Mos® was added to milk at a level of 2-4 g/calf/d from day 1 through weaning
- Calf starter was fed *ad libitum*
- Calf weights and calf starter feed intake were recorded for individual calves
- Analysis of variance performed on pooled data from all 5 trials

Results

Overall calf performance was consistently good in all trials. Bio-Mos® significantly improved starter intake an average of 18.3% ($P<0.025$), increasing calf weight gain an average of 14.4% ($P<0.005$).

Conclusion

The addition of Bio-Mos® to milk replacers or whole milk offers an effective tool to stimulate calf starter intake and maximize growth rate.

Effect of Bio-Mos® in milk replacer on total weight gain (lb).

Trial Location	Control	Bio-Mos®
Milk Specialties Trial 1	47.46	50.82
Milk Specialties Trial 2	26.46	28.56
Alltech Trial 1	27.90	37.20
Alltech Trial 2	26.00	30.76
Alltech Trial 3	39.45	45.37
Colorado State	63.24	66.39
Average Response		(+14.4%)

Addition to calf starter

- Trial 1. A standard pelleted starter was compared with starter containing Bio-Mos® at 4 lb/t in a 42-day trial.
- Trial 2. Two 56-day trials compared a pelleted calf starter (Control) with Bio-Mos® added at a level of 7 lb/t. Data were averaged for the combined trials.
- Trial 3. Performance on a textured calf starter fed either with or without Bio-Mos® top-dressed at 2 g/hd/d was monitored for 56 days. Calf starter intake was not reported.

Conclusions

Bio-Mos® can improve calf performance by supplementing calf starter formulation as an alternative to supplementing milk or milk replacer.

Effects of Bio-Mos®: Addition to calf starter.

Trial 1	Control	Bio-Mos®
Total starter intake, lb	28.67	27.81
ADG, lb	0.63	0.62
Trial 2		
Daily starter intake, lb	1.98	2.16
ADG, lb	1.16	1.36
Trial 3		
ADG, lb	1.28	1.54

Effect of adding Bio-Mos® to milk replacer on intake (lb).

Trial Location	Control	Bio-Mos®
Milk Specialties Trial 1	49.57	57.33
Milk Specialties Trial 2	28.07	31.30
Alltech Trial 1	35.93	42.47
Alltech Trial 2	22.11	28.22
Average Response		(+18.3%)